INDEX TO AUTHORS

A

ABBOTT, JOAN, and HOLTZER, HOWARD. The loss of phenotypic traits by differentiated cells. III. The reversible behavior of chondrocytes in primary cultures, 473

AIKAWA, MASAMICHI, HEPLER, PETER K., HUFF, CLAY G., and SPRINZ, HELMUTH. The feeding mechanism of avian malarial parasites, 355

B

BAINTON, DOROTHY FORD, and FARQUHAR, MARILYN G. Origin of granules in polymorphonuclear leukocytes. Two types derived from opposite faces of the Golgi complex in developing granulocytes, 277

BAUER, G. ERIC, LINDALL, ARNOLD W., JR., DIXIT, PADMAKER K., LESTER, GORDON, and LAZAROW, ARNOLD. Studies on insulin biosynthesis. Subcellular distribution of leucine-H^3 radioactivity during incubation of goosefish islet tissue, 413

BÖHM, N., and SANDRITTER, W. Feulgen hydrolysis of normal cells and mouse ascites tumor cells, 1

BROWN, ARNOLD L., JR. See CARNEY and BROWN, 375

C

CARMICHAEL, G. G., and FULLMER, H. M. The fine structure of the oxytalan fiber, 33

CARNEY, JOHN A., and BROWN, ARNOLD L., JR. An electron microscope study of canine cardiac myosin and some of its aggregates, 375

CHU, E. H. Y. See REGAN and CHU, 139

COGGESHALL, RICHARD E. A fine structural analysis of the epidermis of the earthworm, *Lumbricus terrestris* L., 95

COMINGS, DAVID E. Uridine-5-H^3 radioautography of the human sex chromatin body, 437

CUNNINGHAM, WILLIAM P., MORRÉ, D. JAMES, and MOLLENHAUER, H. H. Structure of isolated plant Golgi apparatus revealed by negative staining, 169

D

DAFNI, ZIPORA, and SHILO, M. The cytotoxic principle of the phytoflagellate *Prymnesium parvum*, 461

DIERS, LOTHAR. On the plastids, mitochondria, and other cell constituents during oögenesis of a plant, 527

DIXIT, PADMAKER K. See BAUER, LINDALL, DIXIT, LESTER, and LAZAROW, 413

DROLLER, MICHAEL J., and ROTH, THOMAS F. An electron microscope study of yolk formation during oogenesis in *Lebistes reticulatus* guppyi, 209

E

EMESON, EUGENE E., KIKKAWA, YUTAKA, and GUEFT, BORIS. New features of amyloid found after digestion with trypsin, 570

ERICSSON, JAN L. E. See ORRENIUS and ERICSSON, 181

F

FARQUHAR, MARILYN G. See BAINTON and FARQUHAR, 277

FUJIWARA, SEIKI. See TSUKADA, MOCHIZUKI, and FUJIWARA, 449

FULLMER, H. M. See CARMICHAEL and FULLMER, 33

G

GAUTHIER, GERALDINE F., and PADYKULA, HELEN A. Cytological studies of fiber types in skeletal muscle. A comparative study of the mammalian diaphragm, 333

GROSS, ELIZABETH L. See PACKER, NOBEL, GROSS, and MEL, 443

GUEFT, BORIS. See EMESON, KIKKAWA, and GUEFT, 570

H

HAGOPIAN, MARTIN. The myofilament arrangement in the femoral muscle of the cockroach, *Leucophaea maderae* Fabricius, 545

HARRIS, CURTIS C., and LEONE, CHARLES A. Some effects of EDTA and tetraphenylboron on the ultrastructure of mitochondria in mouse liver cells, 405

HEPLER, PETER K. See AIKAWA, HEPLER, HUFF, and SPRINZ, 355

HICKS, R. M. The permeability of rat transitional epithelium. Keratinization and the barrier to water, 21

HOLTZER, HOWARD. See ABBOTT and HOLTZER, 473

HUFF, CLAY G. See AIKAWA, HEPLER, HUFF, and SPRINZ, 355

I

VAN ITERSON, WOUTERA. The fine structure of the ribonucleoprotein in bacterial cytoplasm, 563

K

KEEFE, J. R. See SAMORAJSKI, ORDY, and KEEFE, 489

KELLY, DOUGLAS E. Fine structure of desmosomes, hemidesmosomes, and an adepidermal globular layer in developing newt epidermis, 51

KENNEDY, JOHN R., JR. The effect of strychnine and light on pigmentation in *Blepharisma undulans* Stein, 145
KIKKAWA, YUTAKA. See EMESON, KIKKAWA, and GUEFT, 570

L

LANDAU, J. V. High pressure effects on endogenous adenine nucleotide levels in sea urchin eggs prior to first cleavage, 408
LANDOLT, ALEX M., and RIS, HANS. Electron microscope studies on soma-somatic interneuronal junctions in the corpus pedunculatum of the wood ant (*Formica lugubris* Zott.), 391
LAZAROW, ARNOLD. See BAUER, LINDALL, DIXIT, LESTER, and LAZAROW, 413
LEESON, C. R. See LEESON and LEESON, 577
LEESON, T. S., and LEESON, C. R. Osmiophilic lamellated bodies and associated material in lung alveolar spaces, 577
LEIGHTON, JOSEPH. See MERKOW and LEIGHTON, 127
LEONE, CHARLES A. See HARRIS and LEONE, 405
LESTER, GORDON. See BAUER, LINDALL, DIXIT, LESTER, and LAZAROW, 413
LINDALL, ARNOLD W., JR. See BAUER, LINDALL, DIXIT, LESTER, and LAZAROW, 413
LINTILHAC, PHILIP M., and PARK, R. B. Localization of chlorophyll in spinach chloroplast lamellae by fluorescence microscopy, 582

M

MAHOWALD, A. P. See MUCKENTHALER and MAHOWALD, 199
MEL, HOWARD C. See PACKER, NOBEL, GROSS, and MEL, 443
MERKOW, LEONARD, and LEIGHTON, JOSEPH. Increased numbers of annulate lamellae in myocardium of chick embryos incubated at abnormal temperatures, 127
MOCHIZUKI, YOHICHI. See TSUKADA, MOCHIZUKI, and FUJIWARA, 449
MOLLENHAUER, H. H. See CUNNINGHAM, MORRÉ, and MOLLENHAUER, 169
MORRÉ, D. JAMES. See CUNNINGHAM, MORRÉ, and MOLLENHAUER, 169
MUCKENTHALER, F. A., and MAHOWALD, A. P. DNA synthesis in the ooplasm of *Drosophila melanogaster*, 199

N

NOBEL, PARK S. See PACKER, NOBEL, GROSS, and MEL, 443

O

ORDY, J. M. See SAMORAJSKI, ORDY, and KEEFE, 489
ORRENIUS, STEN, and ERICSSON, JAN L. E. Enzyme-membrane relationship in phenobarbital induction of synthesis of drug-metabolizing enzyme system and proliferation of endoplasmic membranes, 181

P

PACKER, LESTER, NOBEL, PARK S., GROSS, ELIZABETH L., and MEL, HOWARD C. Fractionation of spinach chloroplasts by flow sedimentation-electrophoresis, 443
PADYKULA, HELEN A. See GAUTHIER and PADYKULA, 333
PARK, R. B. See LINTILHAC and PARK, 582
PEPE, FRANK A. Some aspects of the structural organization of the myofibril as revealed by antibody-staining methods, 505

R

REGAN, J. D., and CHU, E. H. Y. A convenient method for assay of DNA synthesis in synchronized human cell cultures, 139
RIS, HANS. See LANDOLT and RIS, 391
ROSENBLUTH, JACK. Redundant myelin sheaths and other ultrastructural features of the toad cerebellum, 73
ROTH, THOMAS F. See DROLLER and ROTH, 209

S

SAMORAJSKI, T., ORDY, J. M., and KEEFE, J. R. Structural organization of the retina in the tree shrew (*Tupaia glis*), 489
SANDRITTER, W. See BÖHM and SANDRITTER, 1
SCHMIDT, JEAN M., and STANIER, R. Y. The development of cellular stalks in bacteria, 423
SEED, JOHN. The synthesis of DNA, RNA, and nuclear protein in normal and tumor strain cells. I. Fresh embryo human cells, 233
—. —. II. Fresh embryo mouse cells, 249
—. —. III. Mouse ascites tumor cells, 257
—. —. IV. HeLa tumor strain cells, 263
SHILO, M. See DAFNI and SHILO, 461
SMITH, DAVID S. The organization of flight muscle fibers in the Odonata, 109
SPRINZ, HELMUTH. See AIKAWA, HEPLER, HUFF, and SPRINZ, 355
STANIER, R. Y. See SCHMIDT and STANIER, 423
SUTTON, JERRY S., and WEISS, LEON. Transformation of monocytes in tissue culture into macrophages, epithelioid cells, and multinucleated giant cells. An electron microscope study, 303

T

TAYLOR, A. C. Microtubules in the microspikes and cortical cytoplasm of isolated cells, 155
THAEMERT, J. C. Ultrastructural interrelationships of nerve processes and smooth muscle cells in three dimensions, 37
TSUKADA, HIDEYUKI, MOCHIZUKI, YOHICHI, and FUJIWARA, SEIKI. The nucleoids of rat liver cell microbodies. Fine structure and enzymes, 449

V

VIOLA-MAGNI, MARIA PIA. A radioautographic study with H^3-thymidine on adrenal medulla nuclei of rats intermittently exposed to cold, 9

W

WEISS, LEON. See SUTTON and WEISS, 303

INDEX TO SUBJECTS

A

Adenine nucleotide (endogenous) levels, in sea urchin eggs prior to first cleavage, high pressure effects on, biochemical study, 408

Adrenal medulla, of rat, changes in nuclear DNA content in animals intermittently exposed to cold, radioautographic and histophotometric study, 9

Alveolar spaces, of lungs of adult and neonate rats, osmiophilic lamellated bodies and associated material in, EM study, 577

Amyloid fibrils, of human liver, new features of structure of following digestion with trypsin, EM study, 570

Annulate lamellae and associated glycogen, in myocardial cells of chick embryos after incubation of eggs at abnormally low temperature, EM study, 127

Antibody staining, in fluorescence microscopy and EM, of chicken striated muscle, some aspects of structural organization of myofilaments of myofibrils, distribution of actin and myosin and tropomyosin, 505

Archegonium and egg cell, of liverwort *Sphaerocarpus*, behavior of plastids and mitochondria and other cell constituents during development of, quantitative analysis, EM study, 527

B

Bacteria, *Caulobacter* and *Asticcacaulis*, analysis of stalk development in by radioautography and pretreatment with lysozyme and penicillin, EM study, 423

—, fine structure of ribonucleoprotein in cytoplasm, existence of interconnected fibrillar material throughout cell, EM study, 563

Brain, of toad, redundant myelin sheaths and other ultrastructural features of cerebellum of, EM study, 73

C

Canine, cardiac muscle, morphology of myosin and some of its aggregates, analysis of molecular length, EM study, 375

Cell attachment, in developing epidermis of salamander skin, fine structure of desmosomes and hemidesmosomes and adepidermal globular layer, EM study, 51

— attachment, in earthworm epidermis, fine structure of cuticle and adepidermal epithelium and underlying fibrous tissue, junctional specializations (septate desmosomes) uniting epithelial cells, EM study, 95

— injury, induced in Ehrlich ascites tumor cells by cytotoxic principle of extracts of phytoflagellate *Prymnesium parvum*, studied by light microscopy and quantitative analyses of cellular changes, 461

Cell-dispersing agents, EDTA and tetraphenylboron, some effects of on ultrastructure of mitochondria in mouse liver cells, EM study, 405

Cells, differentiated, loss of phenotypic traits by, reversible behavior of chondrocytes (vertebral) in primary cultures, of chick embryo, analysis of factors regulating shifts between specialization and division, radioautographic and cytochemical study, 473

—, human conjunctival and HeLa and chick embryonic, microtubules in microspikes (projections) and cortical cytoplasm of, EM study, 155

—, human cultured embryonic, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 233

—, human cultured HeLa tumor, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 263

—, human, HCAAT line derived from HeLa, convenient method for assay of DNA and RNA syntheses in synchronized cells in suspension culture, radioactive labeling, 139

—, liver, of mouse, some effects of cell-dispersing agents EDTA and tetraphenylboron on ultrastructure of mitochondria in, EM study, 405

—, mouse cultured ascites tumor, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 257

—, mouse cultured embryonic, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 249

—, normal (thymic lymphocytes and peritoneal mesothelial) and ascites tumor cells, of mouse, differential effect of Feulgen hydrolysis on DNA of, cytophotometric study, 1

—, rat liver, fine structure and enzymes of nucleoids of microbodies of, biochemical and EM study, 449

Cellular stalks, in bacteria *Caulobacter* and *Asticcacaulis*, analysis of development of by radioautography and pretreatment with lysozyme and penicillin, EM study, 423

Cerebellum, of toad, redundant myelin sheaths and other ultrastructural features of, EM study, 73

Chick, embryo, annulate lamellae and associated glycogen in myocardial cells of, after incubation of eggs at abnormally low temperature, EM study, 127

— embryonic cells and human conjunctival and

HeLa cells, microtubules in microspikes (projections) and cortical cytoplasm of, EM study, 155
Chick embryos, reversible behavior of chondrocytes (vertebral) in primary cultures, analysis of factors regulating shifts between specialization and division, loss of phenotypic traits by differentiated cells, radioautographic and cytochemical study, 473
Chicken, blood monocytes in vitro, sequential transformation of into macrophages and epithelioid cells and multinucleated giant cells, EM study, 303
—, striated muscle, some aspects of structural organization of myofilaments of myofibrils of, distribution of actin and myosin and tropomyosin, studied by antibody staining in fluorescence microscopy and EM, 505
Chlorophyll, localization of, in lamellae of chloroplasts in suspension, of spinach plant, studied by fluorescence microscopy and EM, 582
Chloroplasts in suspension, of spinach plant, localization of chlorophyll in lamellae of, studied by fluorescence microscopy and EM, 582
—, of spinach plant, separation of in vitro into fractions by stable-flow free boundary sedimentation-electrophoresis, 443
Chondrocytes (vertebral), of chick embryos, reversible behavior of in primary cultures, analysis of factors regulating shifts between specialization and division, loss of phenotypic traits by differentiated cells, radioautographic and cytochemical study, 473
Chromatin body (sex), of human female fibroblasts, analysis of RNA synthesis by DNA of, radioautographic study, 437
Connective tissue, in periodontal membranes around growing incisor teeth of rat, fine structure of oxytalan fiber of, 33
Corpus pedunculatum, of ant *Formica lugubris*, soma-somatic interneuronal junctions in, EM study, 391
Cuticle and adepidermal epithelium and underlying fibrous tissue, junctional specializations uniting epithelial cells, in earthworm epidermis, fine structure of, 95
Cytoplasm of bacteria, fine structure of ribonucleoprotein in, existence of interconnected fibrillar material throughout cell, EM study, 563
Cytostome, role of in feeding mechanism in erythrocytic and exoerythrocytic stages of avian malarial parasites (*Plasmodium*), EM study, 355

D

Desmosomes and hemidesmosomes and adepidermal globular layer, in developing epidermis of salamander skin, fine structure of, 51
— (septate) and other junctional specializations uniting epithelial cells, in earthworm epidermis, fine structure of cuticle and adepidermal epithelium and underlying fibrous tissue, EM study, 95
Diaphragm, mammalian, comparative study of, correlation of cytological aspects and functional activity of fiber types in skeletal muscle, light and electron microscope cytochemical study, 333
Dictyosome (Golgi apparatus), isolated, of onion *Allium cepa*, structure of as revealed by negative staining, EM study, 169
DNA content, of nuclei of rat adrenal medulla, changes of in animals intermittently exposed to cold, radioautographic and histophotometric study, 9
—, of normal (thymic lymphocytes and peritoneal mesothelial) and ascites tumor cells, of mouse, differential effect of Feulgen hydrolysis on, cytophotometric study, 1
— and RNA and nuclear protein, physical measurements of net syntheses of in individual cells, of human embryonic cell cultures, interferometric and photometric studies, 233
— and RNA and nuclear protein, physical measurements of net syntheses of in individual cells, of human HeLa tumor cell cultures, interferometric and photometric studies, 263
— and RNA and nuclear protein, physical measurements of net syntheses of in individual cells, of mouse ascites tumor cell cultures, interferometric and photometric studies, 257
— and RNA and nuclear protein, physical measurements of net syntheses of in individual cells, of mouse embryonic cell cultures, interferometric and photometric studies, 249
— and RNA syntheses, convenient method for assay of, in synchronized human cells in suspension culture, radioactive labeling, 139
— synthesis, in ooplasm of *Drosophila melanogaster*, light and electron microscope radioautographic study, 199

E

Earthworm, *Lumbricus terrestris*, analysis of fine structure of epidermis of, 95
Egg cell and archegonium, of liverwort *Sphaerocarpus*, behavior of plastids and mitochondria and other cell constituents during development of, quantitative analysis, EM study, 527
Eggs, of sea urchin, high pressure effects on endogenous adenine nucleotide levels prior to first cleavage of, biochemical study, 408
Electrophoresis-sedimentation, fractionation of spinach chloroplasts by stable-flow free boundary method of, 443
Enzyme-membrane relationship, in phenobarbital induction of synthesis of drug-metabolizing enzyme system and proliferation of endoplasmic membranes, in rat liver parenchymal cells, biochemical and EM study, 181
Enzymes, in nucleoids of microbodies, of rat liver cells, fine structure of nucleoids, biochemical and EM study, 449
Epidermis, developing, in salamander skin, fine structure of desmosomes and hemidesmosomes and adepidermal globular layer in, EM study, 51
—, of earthworm, analysis of fine structure of, 95
Epithelioid cells and multinucleated giant cells, sequential transformation of chicken blood mono-

cytes in vitro into macrophages and, EM study, 303
Epithelium, transitional, of rat urinary bladder and ureter, permeability of, keratinization and barrier to water, EM and cytochemical study, 21
Eye, of tree shrew *Tupaia glis*, structural organization of photoreceptors and retina of, light and electron microscope study, 489

F

Feeding mechanism, of avian malarial parasites (*Plasmodium*), role of cytostome in erythrocytic and exoerythrocytic stages, EM study, 355
Feulgen hydrolysis, differential effect of on DNA of normal (thymic lymphocytes and peritoneal mesothelial) and ascites tumor cells, of mouse, cytophotometric study, 1
Fiber, of synchronous flight muscle of insects of order Odonata, organization of, EM study, 109
—, oxytalan, in connective tissue of periodontal membranes around growing incisor teeth of rat, fine structure of, 33
— types in skeletal muscle, correlation of cytological aspects and functional activity of, comparative study of mammalian diaphragm, light and electron microscope cytochemical study, 333
Fibers, of cockroach femoral muscle, arrangement of myofilaments in myofibrils of, studied by light and electron microscopy, 545
Fibrillar material, existence of throughout bacterial cells, fine structure of ribonucleoprotein in cytoplasm, EM study, 563
Fibrils, amyloid, of human liver, new features of structure of after digestion with trypsin, EM study, 570
Fibroblasts, of human female, analysis of RNA synthesis by DNA of sex chromatin body of, radioautographic study, 437
Fish, guppy *Lebistes reticulatus*, fine structural changes during protein yolk formation in developing oocytes of, EM study, 209
—, *Lophius piscatorius*, subcellular distribution of leucine-H^3 radioactivity during incubation of pancreatic islet tissue, biochemical study of insulin biosynthesis, 413
Fractionation, of spinach chloroplasts in vitro, by method of stable-flow free boundary sedimentation-electrophoresis, 443
Frog, *Rana pipiens*, ultrastructural interrelationships of nerve processes and smooth muscle cells (intestine) in three dimensions, EM study utilizing serial sections, 37

G

Glycogen in association with annulate lamellae, in myocardial cells of chick embryos after incubation of eggs at abnormally low temperature, EM study, 127
Golgi apparatus, isolated, of onion *Allium cepa*, structure of as revealed by negative staining, EM study, 169
— complex, origin of granules from in polymorphonuclear leukocytes, two types derived from opposite faces of in developing granulocytes, of rabbit bone marrow, EM study, 277
Granules in polymorphonuclear leukocytes, origin of, two types derived from opposite faces of Golgi complex in developing granulocytes, of rabbit bone marrow, EM study, 277
—, pigment, in ciliate *Blepharisma undulans*, effects of strychnine and light on, studied by light and electron microscopy, 145

H

Human cells, conjunctival and HeLa, and chick embryonic cells, microtubules in microspikes (projections) and cortical cytoplasm of, EM study, 155
— cells, HCAAT line derived from HeLa, convenient method for assay of DNA and RNA syntheses in synchronized cells in suspension culture, radioactive labeling, 139
—, embryonic cell cultures, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 233
—, female fibroblasts, analysis of RNA synthesis by DNA of sex chromatin body of, radioautographic study, 437
—, HeLa tumor cell cultures, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 263
—, liver, new features of structure of amyloid fibrils after digestion with trypsin, EM study, 570

I

Insect, ant *Formica lugubris*, soma-somatic interneuronal junctions in corpus pedunculatum of, EM study, 391
—, cockroach *Leucophaea maderae*, arrangement of myofilaments in myofibrils of femoral muscle, studied by light and electron microscopy, 545
—, *Drosophila melanogaster*, DNA synthesis in ooplasm of, light and electron microscope radioautographic study, 199
—, order Odonata, organization of fibers in synchronous flight muscle of, EM study, 109
Insulin biosynthesis, subcellular distribution of leucine-H^3 radioactivity during incubation of pancreatic islet tissue of goosefish *Lophius piscatorius*, biochemical study, 413
Intestine, of frog, ultrastructural interrelationships of nerve processes and smooth muscle cells in three dimensions, EM study utilizing serial sections, 37

K

Keratinization and barrier to water, permeability of transitional epithelium of rat urinary bladder and ureter, EM and cytochemical study, 21

L

Lamellae, of chloroplasts in suspension, of spinach plant, localization of chlorophyll in, studied by fluorescence microscopy and EM, 582

Lamellated bodies, osmiophilic, and associated material, in alveolar spaces of lungs of adult and neonate rats, EM study, 577
Leukocytes, polymorphonuclear, origin of granules in, two types derived from opposite faces of Golgi complex in developing granulocytes, of rabbit bone marrow, EM study, 277
Light and strychnine, effects of on pigmentation in ciliate *Blepharisma undulans*, studied by light and electron microscopy, 145
Liver cells, of mouse, some effects of cell-dispersing agents EDTA and tetraphenylboron on ultrastructure of mitochondria in, EM study, 405
— cells, of rat, fine structure and enzymes of nucleoids of microbodies of, biochemical and EM study, 449
—, of human, new features of structure of amyloid fibrils after digestion with trypsin, EM study, 570
—, parenchymal cells, of rat, enzyme-membrane relationship in phenobarbital induction of synthesis of drug-metabolizing enzyme system and proliferation of endoplasmic membranes in, biochemical and EM study, 181
Lung, of adult and neonate rats, osmiophilic lamellated bodies and associated material in alveolar spaces of, EM study, 577

M

Macrophages and epithelioid cells and multinucleated giant cells, sequential transformation of chicken blood monocytes in vitro into, EM study, 303
Malarial (avian) parasites (*Plasmodium*), feeding mechanism of, role of cytostome in erythrocytic and exoerythrocytic stages of, EM study, 355
Mammals, various species, comparative study of diaphragm of, correlation of cytological aspects and functional activity of fiber types in skeletal muscle, light and electron microscope cytochemical study, 333
Membrane barrier, permeability of transitional epithelium of rat urinary bladder and ureter, keratinization and barrier to water, EM and cytochemical study, 21
Membrane-enzyme relationship, in phenobarbital induction of synthesis of drug-metabolizing enzyme system and proliferation of endoplasmic membranes, in rat liver parenchymal cells, biochemical and EM study, 181
Membranes, of nerve cells, soma-somatic interneuronal junctions in corpus pedunculatum of ant *Formica fugubris*, EM study, 391
Microbodies, in rat liver cells, fine structure and enzymes of nucleoids of, biochemical and EM study, 449
Microspikes (projections) and cortical cytoplasm, of human conjunctival and HeLa cells and chick embryonic cells, microtubules in, EM study, 155
Microtubules in microspikes (projections) and cortical cytoplasm, of human conjunctival and HeLa cells and chick embryonic cells, EM study, 155
Mitochondria, in mouse liver cells, some effects of cell-dispersing agents EDTA and tetraphenylboron on ultrastructure of, EM study, 405
— and plastids and other cell constituents, behavior of during development of archegonium and egg cell of liverwort *Sphaerocarpus*, quantitative analysis, EM study, 527
Monocytes in vitro, of chicken, sequential transformation of into macrophages and epithelioid cells and multinucleated giant cells, EM study, 303
Mouse, ascites tumor cell cultures, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 257
—, embryonic cell cultures, physical measurements of net syntheses of DNA and RNA and nuclear protein in individual cells, interferometric and photometric studies, 249
—, liver cells, some effects of cell-dispersing agents EDTA and tetraphenylboron on ultrastructure of mitochondria in, EM study, 405
—, normal (thymic lymphocytes and peritoneal mesothelial) and ascites tumor cells, differential effect of Feulgen hydrolysis on DNA of, cytophotometric study, 1
Multinucleated giant cells, sequential transformation of chicken blood monocytes in vitro into macrophages and epithelioid cells and, EM study, 303
Muscle, cardiac, canine, morphology of myosin and some of its aggregates, analysis of molecular length, EM study, 375
—, cardiac, of chick embryos, annulate lamellae and associated glycogen in cells of, after incubation of eggs at abnormally low temperature, EM study, 127
— cells (smooth) and nerve processes, ultrastructural interrelationships of in three dimensions, in frog intestine, EM study utilizing serial sections, 37
—, femoral, of cockroach, arrangement of myofilaments in myofibrils of, studied by light and electron microscopy, 545
—, skeletal, comparative study of mammalian diaphragm, correlation of cytological aspects and functional activity of fiber types in, light and electron microscope cytochemical study, 333
—, striated, of chicken, some aspects of structural organization of myofilaments of myofibrils of, distribution of actin and myosin and tropomyosin, studied by antibody staining in fluorescence microscopy and EM, 505
—, synchronous flight, of insects of order Odonata, organization of fibers of, EM study, 109
Myelin sheaths, redundant, and other ultrastructural features of toad cerebellum, EM study, 73
Myofilaments, arrangement of in myofibrils of cockroach femoral muscle, studied by light and electron microscopy, 545
—, some aspects of structural organization of myofibrils of chicken striated muscle, distribution of actin and myosin and tropomyosin, studied by antibody staining in fluorescence microscopy and EM, 505
Myosin and some of its aggregates, in canine cardiac

muscle, morphology of, analysis of molecular length, EM study, 375

N

Nerve processes and smooth muscle cells, ultrastructural interrelationships of in three dimensions, in frog intestine, EM study utilizing serial sections, 37

Neuronal junctions, soma-somatic, in corpus pedunculatum of ant *Formica lugubris*, EM study, 391

Nuclei, of rat adrenal medulla, changes in DNA content of in animals intermittently exposed to cold, radioautographic and histophotometric study, 9

Nucleoids of microbodies, of rat liver cells, fine structure and enzymes of, biochemical and EM study, 449

Nucleotides, adenine (endogenous), in sea urchin eggs prior to first cleavage, high pressure effects on, biochemical study, 408

O

Oocytes, developing, of guppy *Lebistes reticulatus*, fine structural changes during protein yolk formation in, EM study, 209

Ooplasm, of *Drosophila melanogaster*, DNA synthesis in, light and electron microscope radioautographic study, 199

Oxytalan fiber, in connective tissue of periodontal membranes around growing incisor teeth of rat, fine structure of, 33

P

Pancreas islet tissue, of goosefish *Lophius piscatorius*, subcellular distribution of leucine-H^3 radioactivity during incubation of, biochemical study of insulin biosynthesis, 413

Parasites (*Plasmodium*), avian malarial, feeding mechanism of, role of cytostome in erythrocytic and exoerythrocytic stages of, EM study, 355

Phenobarbital induction of synthesis of drug-metabolizing enzyme system and proliferation of endoplasmic membranes, in rat liver parenchymal cells, enzyme-membrane relationship in, biochemical and EM study, 181

Photoreceptors and retina, of tree shrew *Tupaia glis*, structural organization of, light and electron microscope study, 489

Pigmentation, in ciliate *Blepharisma undulans*, effects of strychnine and light on, studied by light and electron microscopy, 145

Plant, liverwort *Sphaerocarpus donnellii*, behavior of plastids and mitochondria and other cell constituents during development of archegonium and egg cell, quantitative analysis, EM study, 527

—, onion *Allium cepa*, structure of isolated Golgi apparatus as revealed by negative staining, EM study, 169

—, spinach, localization of chorophyll in lamellae of chloroplasts in suspension, studied by fluorescence microscopy and EM, 582

—, spinach, separation of chloroplasts in vitro into fractions by stable-flow free boundary sedimentation-electrophoresis, 443

Plastids and mitochondria and other cell constituents, behavior of during development of archegonium and egg cell of liverwort *Sphaerocarpus*, quantitative analysis, EM study, 527

Polymorphonuclear leukocytes, origin of granules in, two types derived from opposite faces of Golgi complex in developing granulocytes, of rabbit bone marrow, EM study, 277

Pressure (high) effects on endogenous adenine nucleotide levels, in sea urchin eggs prior to first cleavage, biochemical study, 408

Protein, nuclear, and DNA and RNA, physical measurements of net syntheses of in individual cells, of human embryonic cell cultures, interferometric and photometric studies, 233

—, nuclear, and DNA and RNA, physical measurements of net syntheses of in individual cells, of human HeLa tumor cell cultures, interferometric and photometric studies, 263

—, nuclear, and DNA and RNA, physical measurements of net syntheses of in individual cells, of mouse ascites tumor cell cultures, interferometric and photometric studies, 257

—, nuclear, and DNA and RNA, physical measurements of net syntheses of in individual cells, of mouse embryonic cell cultures, interferometric and photometric studies, 249

— yolk formation, in developing oocytes of guppy *Lebistes reticulatus*, fine structural changes during, EM study, 209

Protozoan, ciliate *Blepharisma undulans*, effects of strychnine and light on pigmentation of, studied by light and electron microscopy, 145

—, phytoflagellate *Prymnesium parvum*, effects of extracts of cytotoxic principles of on Ehrlich ascites tumor cells, cell injury studied by light microscopy and quantitative analyses of cellular changes, 461

—, *Plasmodium*, feeding mechanism of avian malarial parasites, role of cytostome in erythrocytic and exoerythrocytic stages of, EM study, 355

R

Rabbit, bone marrow, origin of granules in polymorphonuclear leukocytes, two types derived from opposite faces of Golgi complex in developing granulocytes, EM study, 277

Radioactive label, leucine-H^3, subcellular distribution of radioactivity during incubation of pancreatic islet tissue of goosefish *Lophius piscatorius*, biochemical study of insulin biosynthesis, 413

— label, thymidine-H^3, DNA synthesis in ooplasm of *Drosophila melanogaster*, light and electron microscope radioautographic study, 199

— label, thymidine-H^3, radioautographic and histophotometric study of changes in DNA content of adrenal medulla nuclei in rats intermittently exposed to cold, 9

— label, tritiated glucose, analysis of stalk development in bacteria *Caulobacter* and *Asticcacaulis* by radioautography and pretreatment with lysozyme and penicillin, EM study, 423

— label, uridine-H^3, analysis of RNA synthesis by

DNA of sex chromatin body of human female fibroblasts, radioautographic study, 437
Radioactive labels, thymidine-H^3, proline-H^3, sulfate-S^{35}, reversible behavior of chondrocytes (vertebral) in primary cultures, of chick embryo, analysis of factors regulating shifts between specialization and division, loss of phenotypic traits by differentiated cells, radioautographic and cytochemical study, 473
— labels, thymidine-H^3 and uridine-H^3, convenient method for assay of DNA and RNA syntheses in synchronized human cells in suspension culture, 139
Rat, adrenal medulla, changes in nuclear DNA content in animals intermittently exposed to cold, radioautographic and histophotometric study, 9
—, adult and neonate, lung, osmiophilic lamellated bodies and associated material in alveolar spaces of, EM study, 577
—, growing incisor teeth, fine structure of oxytalan fibers of connective tissue in periodontal membranes of, EM study, 33
—, liver cells, fine structure and enzymes of nucleoids of microbodies of, biochemical and EM study, 449
—, liver parenchymal cells, enzyme-membrane relationship in phenobarbital induction of synthesis of drug-metabolizing enzyme system and proliferation of endoplasmic membranes in, biochemical and EM study, 181
—, urinary bladder and ureter, permeability of transitional epithelium of, keratinization and barrier to water, EM and cytochemical study, 21
Retina and photoreceptors, of tree shrew *Tupaia glis*, structural organization of, light and electron microscope study, 489
Ribonucleoprotein in cytoplasm of bacteria, fine structure of, existence of interconnected fibrillar material throughout cell, EM study, 563
RNA and DNA and nuclear protein, physical measurements of net syntheses of in individual cells, of human embryonic cell cultures, interferometric and photometric studies, 233
— and DNA and nuclear protein, physical measurements of net syntheses of in individual cells, of human HeLa tumor cell cultures, interferometric and photometric studies, 263
— and DNA and nuclear protein, physical measurements of net syntheses of in individual cells, of mouse ascites tumor cell cultures, interferometric and photometric studies, 257
— and DNA and nuclear protein, physical measurements of net syntheses of in individual cells, of mouse embryonic cell cultures, interferometric and photometric studies, 249
— and DNA syntheses, convenient method for assay of, in synchronized human cells in suspension culture, radioactive labeling, 139
— synthesis, by DNA of sex chromatin body, in human female fibroblasts, radioautographic study, 437

S

Salamander, *Taricha torosa*, fine structure of desmosomes and hemidesmosomes and adepidermal globular layer in developing epidermis, EM study, 51
Sarcoplasmic reticulum and T system, organization of in fibers of synchronous flight muscle of insects of order Odonata, EM study, 109
Sea urchin, *Arbacia* and *Paracentrotus*, high pressure effects on endogenous adenine nucleotide levels in eggs prior to first cleavage, biochemical study, 408
Sedimentation-electrophoresis, fractionation of spinach chloroplasts by stable-flow free boundary method of, 443
Sex chromatin body, of human female fibroblasts, analysis of RNA synthesis by DNA of, radioautographic study, 437
Shrew (tree), *Tupaia glis*, structural organization of photoreceptors and retina of, light and electron microscope study, 489
Skin, of salamander, fine structure of desmosomes and hemidesmosomes and adepidermal globular layer in developing epidermis, EM study, 51
Soma-somatic interneuronal junctions, in corpus pedunculatum of ant *Formica lugubris*, EM study, 391
Stalk development, in bacteria *Caulobacter* and *Asticcacaulis*, analysis of by radioautography and pretreatment with lysozyme and penicillin, EM study, 423
Strychnine and light, effects of on pigmentation in ciliate *Blepharisma undulans*, studied by light and electron microscopy, 145

T

Toad, *Bufo marinus*, redundant myelin sheaths and other ultrastructural features of cerebellum, EM study, 73
Toxin, in extracts of phytoflagellate *Prymnesium parvum*, effects of on Ehrlich ascites tumor cells, cell injury studied by light microscopy and quantitative analyses of cellular changes, 461
T system and sarcoplasmic reticulum, organization of in fibers of synchronous flight muscle of insects of order Odonata, EM study, 109
Tumor cells, Ehrlich ascites, effects on of cytotoxic principle of extracts of phytoflagellate *Prymnesium parvum*, cell injury studied by light microscopy and quantitative analyses of cellular changes, 461

U

Urinary bladder and ureter, of rat, permeability of transitional epithelium of, keratinization and barrier to water, EM and cytochemical study, 21

Y

Yolk protein formation, in developing oocytes of guppy *Lebistes reticulatus*, fine structural changes during, EM study, 209

8034